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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/081,122	02/22/2002	Bryan P. Riddiford	DP-305565 (7500/87)	8542

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EXAMINER

WILLIAMS, THOMAS J

ART UNIT

PAPER NUMBER

3683

DATE MAILED: 06/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/081,122

Applicant(s)

RIDDIFORD ET AL.

Examiner

Thomas J. Williams

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 April 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 5-13 and 15-17 is/are allowed.
- 6) ☒ Claim(s) 1-4, 14 and 18-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____. | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4, 14 and 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by US 5,106,171 to Leppek et al.

Re-claim 1, Leppek et al. discloses a force generating apparatus for providing a force to a moving element based upon receipt of an electrical force signal, comprising: a force applying element 20 (brake caliper) defining a hydraulic cylinder and including a force applying piston (not illustrated) for applying a force to the moving element 22 (rotor) in response to increasing or decreasing fluid pressure within the cylinder, see column 3 lines 50-55; an actuator 18 defining an apply chamber 42 includes an actuator piston 38 within the apply chamber, the piston is coupled to an actuator piston drive element 34/36 for increasing and decreasing a fluid pressure in the apply chamber, the apply chamber is fluidically coupled to the cylinder and force applying piston of the force applying element for actuation thereof (via conduit 16) by increasing or decreasing chamber pressure of the fluid in the apply chamber and communicating the increased or decreased chamber pressure to the cylinder in response to the electrical force signal, column 4 lines 26-68; during a rapid pressure reduction (interpreted as a signal R3), brought on by a severe lock situation, a controller 28 will modify the value of the electrical force signal sent to the

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actuator to limit the rate at which the chamber pressure in the apply chamber is reduced during a fast mode release or rapid pressure reduction event.

This type of event is described in column 10 lines 38-68 to column 11 lines 1-5, in which the brake pressure is released in a step by step mode commanded by a small release current (column 11 lines 1-2). Release mode R3 is continued for a certain time period KT5. If the time period KT5 expires before a recovery condition is reached then the motor current level is reduced, thus slowing the motor speed and limiting the rate at which pressure in the apply chamber is reduced.

Re-claims 2 and 3, the force applying element is illustrated as a caliper and rotor combination. The examiner takes official notice that the interchangeability of shoe and drum brakes for caliper and rotor brakes is well known in the art.

Re-claim 4, the actuator piston drive element of the actuator 18 includes a motor 30 responsive to the electrical force signal and a gear-ball screw assembly that couples the actuator to the motor, see column 4 lines 6-14.

Re-claim 14, Leppek et al. discloses a method of modifying an electrical force signal to an actuator 18 of a force generating apparatus 20 operatively connected to a moving element (such as a rotor), the force generating apparatus has a force applying element defined by a hydraulic cylinder and piston coupled to a moving element 22 for applying the force to the moving element in response to changing fluid pressure within the cylinder, the force generating apparatus is provided with an actuator 18 defining an apply chamber and an actuator piston 38 coupled to actuator piston drive element for increasing and decreasing a fluid pressure in the apply chamber, the apply chamber is fluidically coupled to the cylinder and force applying piston

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of the force applying element for actuation by selectively increasing and decreasing fluid pressure in the apply chamber and cylinder in response to the electrical force signal from a controller 28, the method includes the steps of: receiving a desired force actuation signal at the controller, step 82; determining when the force generating apparatus is in a fast mode release, step 98; modifying the electrical force signal to limit the rate at which fluid pressure in the apply chamber is reduced during fast mode release, at step 96 the signal is modified to KM2; the modified signal is sent to the actuator.

Re-claim 18, the modified electrical force signal is a reduced value of the electrical force signal.

Re-claim 19, the electrical force signal is applied as unmodified when not operating in the fast mode release, such as at step 88 with the signal as KM1.

Re-claim 20, the modified values are stored in the controller as a reference.

Allowable Subject Matter

3. Claims 5-13 and 15-17 are allowed.

Response to Arguments

4. Applicant's arguments filed April 23, 2003 have been fully considered but they are not persuasive. Leppek discloses that condition R3 is a rapid release of the wheel pressure, column 10 lines 47-52 and lines 57-59. The large motor current translates into a high motor speed which will rapidly reduce pressure in the apply chamber. A release duration period KT5 is assigned to the R3 condition. If this duration period expires before a recovery condition is met then the controller reduces the motor current signal, which in turn reduces the motor speed. A reduced motor speed will limit the rate at which the pressure in the apply chamber is reduced. It is the

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opinion of the examiner that the phrase "fast mode release" broadly encompasses the rapid release condition disclosed by Leppek. Furthermore, as pointed out above the motor speed of the actuator in Leppek is reduced at a certain time. This reduction in motor speed will limit the rate at which pressure in the apply chamber is reduced.

The arguments with regards to the formation of minute bubbles in the apply chamber during a fast mode release are more specific than the claim language.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiries concerning this communication or earlier communications from the examiner should be directed to Thomas Williams whose telephone number is (703) 305-1346. The examiner can normally be reached on Monday-Thursday from 6:30 AM to 4:00 PM. The examiner can also be reached on alternate Fridays.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Lavinder, can be reached at (703) 308-3421. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-7687.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.

TJW

TJW

June 12, 2003


JACK LAVINDER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600
6/13/03